Republic of the Philippines
Department of Education
NATIONAL CAPITAL REGION
Misamis Street, Bago-Bantay, Quezon City

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
(USLeM)

MATHEMATICS 6

Quarter 4 Week 3

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UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grade 6 MATHEMATICS

LESSON 1: READING AND INTERPRETING ELECTRIC AND WATER METER

EXPECTATIONS

Specifically, this module will help you to read and interpret electric and water meter readings. (M6ME-IVd-100)

PRE-TEST

DIRECTIONS: Choose the letter of the best answer. Write your answer on the space provided before each number.

_____1. How do you read and interpret the dials of the electric meter?
A. from right to left C. both A and B
B. from left to right D. none of the above

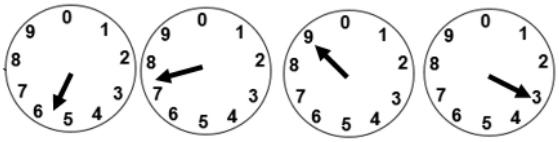
_____2. Which of the following shows the correct electric meter reading base on the given dials?

A. 61 921 kWh C. 02 916 kWh
B. 60 920 kWh D. 02 906 kWh

_____3. What is the correct electric meter reading of the given dials?

A. 03 393 kWh C. 39 331 kWh
B. 03 493 kWh D. 39 330 kWh

_____ 4. How do you read the dials of the water meter below?



A. 3 975 m^3 C. 5 893 m^3
B. 3 985 m^3 D. 5 793 m^3

_____ 5. What unit of measure is used to determine the water consumption in a household?
A. cm^3 B. m^3 C. k^3 D. L^3

LOOKING BACK

DIRECTIONS: Choose the letter of the correct answer. Write your answer on the space provided before each number. (*Use π=3.14*)

_____1. Find the volume of the cylinder with a height of 12 cm and a radius of 4 cm.
A. 1 908 cm^3 B. 602.88 cm^3 C. 150.72 cm^3 D. 48 cm^3

_____ 2. Find the volume of a right circular cone-shaped building with a height of 9 meters and a radius of 7 meters
A. 1 384.074 m^3 B. 593.46 m^3 C. 461.58 m^3 D. 63 m^3

_____ 3. Jayjay and Koko pitched a tent that has the shape of a pyramid. The base of the tent is a rectangle that is 1.5 meters wide and 2.3 meters long. The tent is 2 meters high. What is the volume of the tent?
A. 2.3 m^3 B. 2.6 m^3 C. 6.9 m^3 D. 20.7 m^3

_____ 4. A spherical goldfish bowl has an inside radius of 9 cm. How much water is needed to fill the bowl?
A. 3 052.08 cm^3 C. 9 156.24 cm^3
B. 3 520.08 cm^3 D. 9 165.24 cm^3

_____ 5. A cylindrical water tank has an interior height of 8 meters and a diameter of 6 meters. What is the volume of the water tank in cubic meters?
A. 236.08 m^3 B. 226.08 m^3 C. 48 m^3 D. 28.26 m^3

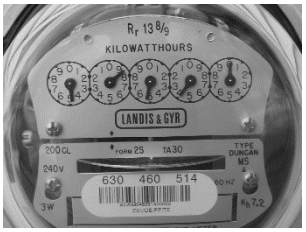
BRIEF INTRODUCTION

READING ELECTRIC METERS

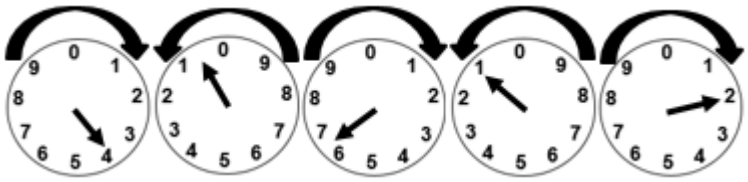
An electricity meter, electric meter, electrical meter, or energy meter is a device that measures the amount of electric energy consumed by a residence, a business, or an electrically powered device.

Two kinds of electric meter

1. Analog electric meter
2. Digital electric meter



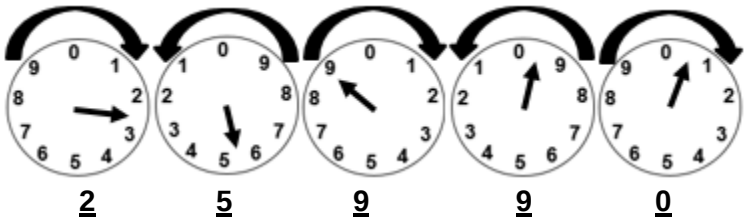
In an analog electric meter, observe that there are five dials and inside each dial is a pointer which indicates the number to be read. The pointers will alternately turn clockwise and counterclockwise. These dials measure the number of kilowatt-hour (*kWh*) one consumes in 1s, 10s, 100s, 1000s, 10 000s.



In a digital electric meter, just read the digit in black and do not count the digit in red.
In reading electric meters:

1. read the dials from right to left.
2. if the pointer is between two numbers, record the lower number.
3. if it is between 9 and 0, record 9.

Example Read and interpret the dials on the electric meter below.
Start reading the dials from right to left.



So, the meter reads 25990 *kWh*.

UNIFIED SUPPLEMENTARY LEARNING MATERIALS
Grade 6 Mathematics

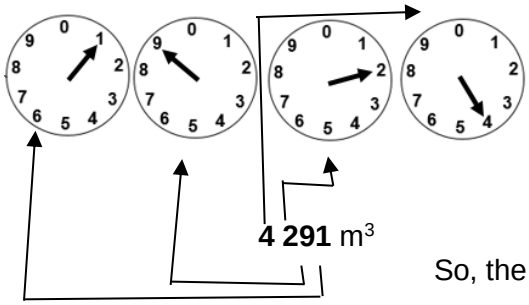
READING WATER METERS

The styles of water meter before were those with small dials. It looks like a series of small clocks that turn clockwise. We use cubic meters (m^3) as a unit of measurement to determine the total water consumption.

Today, most household use a water meter with odometer to measure the amount of water consumption. Only the four black digits in a water meter are read. In reading water meter:

1. Start reading from right to left (clockwise). Read the number by the pointer of the dial. When the pointer is between two numbers, the lower number is recorded.
2. When the pointer is directly on the number, look at the dial to the right. If it has passed zero, use the next higher number. If the dial has not passed zero, use the lower number.
3. Record the number from right to left.

Example: Read and interpret the dials on the meter on the next page. The rightmost dial has the highest value.
To get the exact reading, start from right to left or the highest numbered dial (clockwise).



So, the water meter shows 4 291 m^3

ACTIVITY

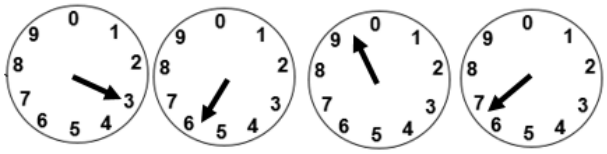
Activity1: **READ ME!**

Directions: Give the reading for each meter.

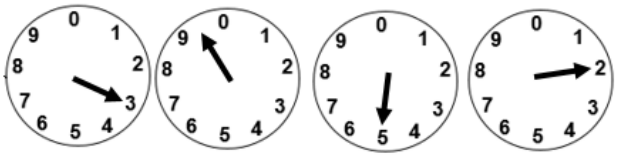
1. _____ kWh

2. _____ kWh

4. _____ m^3



5. _____ m^3



3. _____ kWh

REMEMBER

Electric meter is a device that measures the amount of electric energy consumed. To read electric meter:

- Read the dials from right to left.
- If the pointer is between two numbers, record the lower number.
- If it is between 9 and 0, record 9.
- Use kilowatt per hour (kwh) in calculating electric consumption.

Water meter is a device used to measure the volume of water usage. Water meters typically measure and display the total usage in cubic meters on a mechanical or electronic register. To read water meter:

- Start reading from right to left (clockwise). Read the number by the pointer of the dial. When the pointer is between two numbers, the lower number is recorded.
- Record the number from right to left.

CHECKING YOUR UNDERSTANDING

DIRECTIONS: For items 1-2. Study the given electric meter dials below and answer the questions that follow:

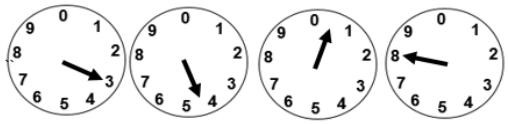
Previous

Present

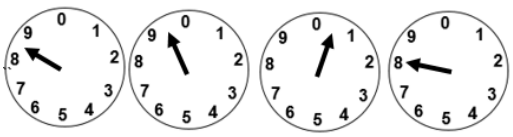
What is the previous electric meter reading? _____

What is the present electric meter reading? _____

For items 3-4. Refer to the water meter readings



Previous



Present

What is the previous water meter reading? _____

What is the present water meter reading? _____

How do you read electric and water meter? _____

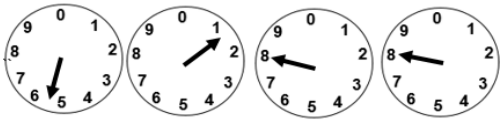
POST-TEST

DIRECTIONS: Choose the letter of the best answer. Write your answer on the space provided before each number.

_____1. What is the reading of the water meter on the right?

A. 8 815 m^3 C. 5 188 m^3

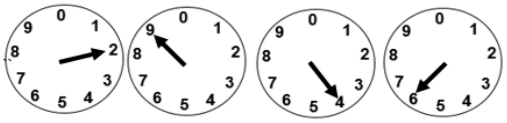
B. 8 816 m^3 D. 6 188 m^3



_____2. Ms. Nacional checks her water meter. What is the current reading of her water meter?

A. 6 492 m^3 C. 2 946 m^3

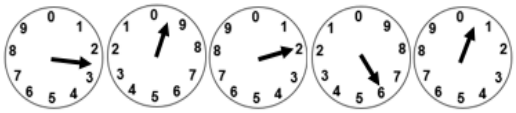
B. 6 392 m^3 D. 2 945 m^3



_____ 3. Read the dials of the electric meter below?

A. 29 260 kWh C. 06 292 kWh

B. 29 261 kWh D. 06 293 kWh



_____ 4. If the pointer of the dial is between 0 and 9, what number will be recorded?

A. 0 B. 9 C. both A and B D. neither A nor B

_____ 5. If the pointer of the dial is between two numbers, which one will be recorded?

A. Lower B. higher C. both A and B D. neither A nor B

LESSON 2: SOLVING ROUTINE AND NON-ROUTINE PROBLEMS INVOLVING ELECTRIC AND WATER CONSUMPTION

EXPECTATIONS

Specifically, this module will help you to solve routine and non-routine problems involving electric and water consumption. (M6ME-IVd-101)

PRE-TEST

DIRECTIONS: Choose the letter of the best answer. Write your answer on the space provided before each number.

For items 1-3. Refer to the problem below.

Last month, an electric meter read 8 985 kWh. This month, the reading is 9 472 kWh. How many kWh was used for one month?

_____ 1. What is asked in the problem?

A. number of kWh used C. kWh used for last month

B. amount of kWh used D. present reading of electric meter

_____ 2. What operation will you use to solve the problem?

A. addition B. division C. multiplication D. subtraction

_____ 3. What is the answer to the problem?

A. 487 kWh B. 497 kWh C. 1 513 kWh D. 1 523 kWh

_____ 4. The previous reading of an electric meter was 9 785 kWh and the present reading is 10 472 kWh. Find the amount paid for the electric consumption at P4.42 per kilowatt-hour? (without other charges)

A. P3, 036.54 B. P3, 035.54 C. P2, 036.54 D. P2, 035.54

_____ 5. Rachel recorded her family's water consumption for two months. The initial reading is 8 472 m^3 and the next reading is 8 523 m^3. If the basic cost of water is P36.24 per cubic meter, how much is the water bill? (without other charges)

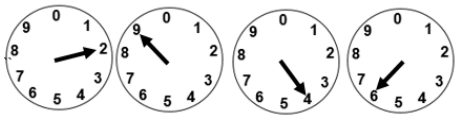
A. P1, 848.24 B. P1, 858.24 C. P2, 848.24 D. P2, 848.24

LOOKING BACK

DIRECTIONS: Write **T** if you think the statement is TRUE and **F** if it is not. Write your answer on the line.

_____1. Read the dials of the electric meter from right to left.
_____ 2. Record 9 if the pointer of the dial is between 0 and 9.
_____ 3. If the pointer of the dial is between two numbers, record the higher number.
_____ 4. The correct reading for electric meter below is 20 260 kWh.

_____ 5. The reading of water meter below is 6 492 m^3.



BRIEF INTRODUCTION

SOLVING ROUTINE AND NON-ROUTINE PROBLEMS INVOLVING ELECTRIC AND WATER CONSUMPTION

In solving routine and non-routine word problems we follow the Polya's Step—Understand, Plan, Solve and Check. To compute for electric and water consumption for a particular period, simply subtract the previous reading from the present reading. To determine the cost of electricity and water consumed, multiply the electric and water consumption by the cost of electricity per *kWh* and cost of water per m^3.

Example

During the Enhanced Community Quarantine Kaea made a record of their electricity consumption, the electric meter reading for April 28, 2020 was 7365 *kWh* and for May 28, 2020, it was 7528 *kWh*. How many *kWh* were used in the month ending May 28, 2020? How much will they pay for the *kWh* consumed during the period if the amount per *kWh* is P4.42?

Understand.

a. What is/are being asked in the problem?
   - The total electricity consumed in *kWh* for one month.
   - The total amount of electricity consumption within the given period.

b. What are the given?
   - April Reading: 7365 *kWh*, May Reading: 7528 *kWh,* Amount per *kWh:* P4.42

Plan.

a. Operations:
   - Subtraction for the first question and Multiplication for the second question

Solve.

- To solve for the electricity consumption for a given a given period, use the formula:

Electricity consumed = Present Reading – Previous Reading

= 7528 *kWh* – 7365 *kWh* = 163 *kWh*

Therefore, the total electricity consumed was **163 *kWh.***

- To solve for the amount of electricity consumption use the formula:

Amount of electricity consumption = kWh used X Amount per kWh
= 163 kWh X P4.42 = P720.46

Therefore, the total amount of electricity consumption was **P720.46.**
Check. Check your answer. Go back to your computation, check if all the given values are properly used.

ACTIVITIES

Activity 1: FILL ME UP!

Directions: Complete the table by filling up the kWh or m^3 used.

A. Table of Electric Meter Readings

Household	Previous	Present	kWh Used
A	2155	2268	
B	4405	4738	
C	6414	6776	

B. Table of Water Meter Readings

Months	Previous	Present	m^3 Used
January	2051	2133	
February	2133	2227	

Activity 2: SOLVE IT!

Directions: Read and analyze each problem and do what is being asked.

1) On March 28, 2021, an electric meter reads 1029 *kWh* and on April 28, 2021, the meter reads 1265 *kWh.* How much is the amount of electricity consumed if the rate is P4.42?
   a. What is being asked in the problem? _____
   b. What are the given? _____
   c. Answer to the problem. _____
2) The last reading in Mr. Salcedo's water meter was 967 m^3 while the present reading is 1042 m^3. How many cubic meters of water did his family consume in the previous month? How much will be the water bill for the previous month if the rate per cubic meter is P36.24?
   a. The total *cubic meter* used for the previous month. _____
   b. The cost of Mr. Salcedo's water consumption. _____

REMEMBER

In solving routine and non-routine word problems we follow the Polya's Step. Understand, Plan, Solve and Check. To compute for electric and water consumption for a particular period, simply subtract the previous reading from the present reading. To determine the cost of electricity and water consumed, multiply the electric and water consumption by the cost of electricity per *kWh* and cost of water per m^3.

CHECKING YOUR UNDERSTANDING

DIRECTIONS: Read, analyze and solve the given problem below following the steps.

Namron found out that in his house, the electric meter reading for December 2020 was 9 572 kWh and for the month of January 2021 was 9 699 kwh. At P4.42 per kWh, how much will he pay for the kWh consumed during the period? (without other charges)

1. Asked: _____
   _____
2. Given: _____
3. Operations: _____
4. Equation: _____
5. Answer: _____

POST-TEST

DIRECTIONS: Choose the letter of the best answer. Write your answer on the space provided before each number.

For items 1-3. Refer to the problem below.

The previous reading of the electric meter of Posadas family was 10 995 kWh and the present reading is 11 542 kWh. Find the amount paid for the electric consumption at P4.42 per kilowatt-hour? (without other charges)

_____ 1. What is asked in the problem?

A. number of kWh used
B. amount paid for kWh used
C. kWh used for last month
D. present reading of electric meter

_____ 2. What operations will you use to solve the problem?

A. subtraction and addition
B. subtraction and multiplication
C. multiplication and addition
D. subtraction and division

_____ 3. What is the answer to the problem?

A. P2 147.74 B. P2 417.74 C. P2 714.74 D. P2 741.74

For items 4-5. Refer to the problem below.

In Mrs. Aquino's house, the water meter reading for February 15 consumption was 8 378 m^3 and for March 15 it was 8 469 m^3. How many cubic meters of water was consumed? (without other charges)

_____ 4. What operation will you use to solve the problem?

A. addition B. subtraction C. multiplication D. division

_____ 5. What is the cost of water consumed if the rate per cubic meter is P36.24?

A. P3 297.84 B. P3 279.84 C. P3 729.84 D. P3 972.84

KEY TO CORRECTION

LESSON 1

LOOKING ACTIVITY

A
D
A
A
B

B
C
C
A
B

PRETEST BACK

31 837 kWh
07 790 kWh
09 174

CHECKING YOUR UNDERSTANDING POSTTEST

31 663 kWh
31 769 kWh
8 043 m^3
8 098 m^3
From left to right

A
A
A
B
A

LESSON 2

PRE TEST

A
D
A
A
A

LOOKING BACK

T
T
F
T
T

ACTIVITY 1

A
A.113
B. 333
C. 362

B
January- 82
February- 94

ACTIVITY 2

A. amount of the electricity consumed
B. March Reading: 1029 kWh
April Reading: 1265 kWh
Rate per kWh: P4.42
C. P1 043.12
A. 75 m^3
B. P2 718.00

CHECKING YOUR UNDERSTANDING

The amount he will pay for the kWh consumed
December Reading: 9572 kWh
January Reading: 9699 kWh
Rate per kWh: P4.42
Subtraction and Multiplication
(9699-9572) x 4.42 = N
P561.34

POST TEST

B
B
B
B
A

REFERENCES

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